



RPOS 316: METHODOLOGICAL TOOLS FOR PUBLIC POLICY

Professor: Matthew C. Ingram
Office: Milne Hall 314-A
Dep: 518-442-3248
Ofc: 518-442-3940
Email: mingram@albany.edu

Location: online
Time: asynchronous
Office hours: online
TuTh: 8:00-9:30AM

Overview

Let's be honest -- few students look forward to studying research methods.

Yes, this course involves some math.

Yes, it also involves some computer programming.

No, this is not too hard.

Research methods are about careful, critical thinking. If we want to draw good conclusions about what political systems are like, what causes what, how things operate, etc., we should reflect on the way we reach our conclusions. That is, we should be *self-conscious* -- not insecure, but rather *self-aware* -- in the way we draw conclusions. In short, research methods are about *thinking about the way we think*. Much of the material is conceptual, overlapping with fields in philosophy of science and epistemology -- how to identify valuable knowledge and know how to generate valuable knowledge of our own. Casual, loose, unsystematic thought is likely to give us a flawed picture of the very things we seek to understand clearly. So, it's important to have careful methods for observing political phenomena, analyzing patterns in our observations, and reaching conclusions about causation, even prediction.

In this spirit of self-conscious thinking, this course offers an introduction to the tools of political analysis, emphasizing basic statistical methods, but also integrating non-mathematical tools. Careful thinking involves lots of things beyond statistics, such as defining concepts clearly. For instance, what do we mean by "democracy"? Is the concept just about voting for representatives? Or does it mean more than that, perhaps real fairness and equality? Also, much work in political science is non-quantitative (i.e., interpretive or qualitative), and there is a rich and evolving tradition in "mixed methods", employing both quantitative and qualitative techniques.

Several factors have led to a dramatic increase in the use of statistics to study political phenomena. First, increasing availability of large data sets allows scholars to test hypotheses that previously could not be tested. Second, advances in computing have made quantitative methods relatively accessible (the R software in this course is an example of this accessibility). Third, quantitative methods have proven to be powerful and flexible tools for social scientists. With many observations we inevitably need a system to summarize and organize the data for us, and thus we turn to statistics. This course uses a hands-on, applied approach to these statistics, including learning how to use R statistical software. After the course, you should feel comfortable reading much of the political science research published in academic books and journals, and confident in your ability to critique this work and design, even produce, work of your own.

That said, it is important to recognize that the statistical methods highlighted here are not the only way to go about studying the political world. The availability of large sets of data and the accessibility of computing software make for a powerful historical juncture, and in this juncture statistics seems like a reasonable way to study politics. Some might even say that you cannot say anything meaningful about the world without a large enough number of observations and statistical methods. I do not share that view. Indeed, I am fairly promiscuous in my own research methods, borrowing from different traditions depending on the question that interests me. At the end of the course, we'll briefly discuss other, complementary methods, and ways of systematically integrating quantitative and qualitative methods in your research. Hopefully, the range of methods you see, including statistics, will inspire you to continue studying methods. Again, this course is an introduction, and my hope is that you'll take more courses like it in the future. Perhaps you'll become a methodologist! At a minimum, I hope you continue to *think about the way you think*. Unlike other areas of your life, in methods *be self-conscious and promiscuous!*

Objectives

After completing this course, you should have a basic understanding of:

- The tenets of the scientific method.
- How to construct concepts and create measures for them.
- How to craft and test hypotheses.
- The different types of research designs, how to select an appropriate design, and how to identify flawed designs.
- Choosing the appropriate type of data analysis for research projects.
- Univariate (one variable) data analysis and descriptive statistics.
- The fundamentals of sampling theory and statistical inference—or, how to draw conclusions about the world in general from the small slice of the world you are observing.
- How to test hypotheses and measure relationships with bivariate (two variables) data analysis.
- How to conduct multivariate (many variables) data analysis, including correlation and regression.
- How to apply all of the above to evaluate existing research and design research of your own.
- How to do all of the above using R statistical software.
- How to create a comprehensive workflow using R and RStudio

Required Readings

The two main texts for this class are:

- (1) Pollock, Philip H. 2016. *The Essentials of Political Analysis*. 5th ed. Washington, DC: CQ Press.
- (2) Pollock, Philip H. 2014. *An R Companion to Political Analysis*. Washington, DC: CQ Press.

*** Note *** There is a bundle of both books that is cheaper than buying the two books separately. I was informed by CQ Press about this and that the bookstore might not be able to offer it. If you do not see bundle at bookstore, search for it online. The ISBN for the bundle is:

The Essentials of Political Analysis, 5e + An R Companion to Political Analysis
ISBN: 978-1-5063-2900-0 (\$116.00)

Both books are available for sale and for rent at the campus bookstore and at numerous alternative and online booksellers. E-books are also available online.

*** Note *** The main text we are using is the 5th edition (2016), and both texts (main text and workbook) include homework exercises. Since data and homework assignments will be based on these versions of the text, you are required to use these editions. You might be able to use earlier editions of the main text for some parts of the course, but you do so at your own risk if the material has changed from one edition to another (e.g., homework exercises might be different). The course is taught for the 5th edition of the text, so there may be some differences, and I cannot check these differences against all previous editions of the text.

The readings from these two texts will be supplemented with shorter readings by other authors. The supplemental readings are available on Blackboard.

Lastly, the author and publisher of the texts have provided several online resources, including links to videos offering alternative explanations of the material. All of this supplemental material online is optional, but I recommend it.

See: edge.sagepub.com/pollock

Requirements

Required assignments include the following:

- Three exams (two mid-semester tests and a final exam)
- Homework assignments (13)
- Participation in online discussions

Grading

The final course grade will be based on the following allocation of points.

Exam 1 and Exam 2 (15% each, 30% total): Each test will require you to apply the materials from the readings, homework, discussions, and any lectures.

Final Exam (25% points): This is a comprehensive final exam for which you will need to demonstrate your mastery over all aspects of the research process.

Homework Assignments (30%): There are 13 homework assignments. All homework questions are located at the end of the chapters in the two required texts. Many questions are

lab exercises using R, which should be completed after reading the corresponding chapter in the R Companion.

I have made an effort to place most homework assignments online on Blackboard. You should follow along in the text and answer questions accordingly. Occasionally, you will be asked to generate a file with your results on your computer and upload this file to Blackboard as your response. I will also routinely ask you to upload your R scripts once we start using R (after first week).

All homework assignments are due by the end of the day (11:59PM) on the due date (see syllabus for specific dates). Completing homework on time is particularly important in a condensed 6-week class in order to maximize the opportunity for feedback prior to exams.

Discussions (15%): There will be at least one discussion for every chapter, including the Introduction, in the main text, which we are calling EPA. You are required to post at least two (2) contributions to each discussion. Contributions should be about the substantive content of the reading, responding to the instructor's initial topic or question, or to later posts by your classmates. I will not always participate directly in every discussion and will remain more of a facilitator for discussions. If I happen to respond to one person's post and not to others, it does not reflect negatively on anyone.

Your first post must come no later than the end of the day (11:59PM) on the day for which the reading is assigned, and you will need to post your contribution to the discussion before you can see the posts of other students. After your first post, you will be able to see the postings of other students and engage in more of a discussion with what others have said. Your second post for each discussion must come no later than Sunday at the end of the week in which the reading was assigned. For instance, if a reading is assigned for Monday, you must make your first post before 11:59PM on Monday, and your second post must come no later than the following Sunday at 11:59PM.

Extra Credit: see section on **Policies** below.

Technical Requirements:

1. Course Website

You will need to use the course website on Blackboard for several components of this course. All students have access to this site, it is your responsibility to learn how to operate it properly, and I expect you to work in that online environment. Many class materials and study aides are available on the site, and most assignments will need to be turned in electronically on the site. On Blackboard, you use your UAAlbany NetID and password to log in — these are the same ones you use for email. For instance, if your email address is ssmith22@albany.edu, you would logon to Blackboard using ssmith22 and the password you use for email.

2. R Software for Homework Exercises and Exams

Most statistics courses require the use of some new technology or software. Regarding software, there are multiple options available. Some are easy to use but cost a lot, even for students. If inexpensive versions are available for students, the license is limited and usually expires after a semester or 6 months (e.g., SPSS). Other options are free, but are either too simple to be useful or require more time to learn.

I have chosen R as the statistical analysis software for this course. It is a bit more difficult to learn at the beginning, but it is free, open-source, very powerful, and extensible, so you do not have to pay anything for it, you can keep using it long after this class is over, and if you continue to build upon the skills learned in this class, the software will adapt to and respond to your analytic needs in the future. R is quickly getting recognized as the gold-standard statistical package across a wide range of disciplines and professions, so I wanted to help you learn it.

You are required to download, install, and use R. This course will teach you how to use R; no prior knowledge is required or assumed. However, you must use and practice skills in this programming environment in order to become comfortable and proficient, and most homework assignments require you to use R. There is a relatively steep learning curve (i.e., it will seem very hard at first, getting easier as we move forward), but learning this skill now will pay off in the future, especially since, unlike other software used in similar courses, this software is free and you will be able to return to it after the course ends.

I also strongly recommend you download and install RStudio, a highly integrated environment in which to use R. RStudio has several benefits, many of which we will discuss during the course.

Regarding R, you are required to create and modify all of your work in R scripts. See chapter 1 in Pollock's R Companion for a discussion of R scripts. R scripts allow you to save and return to your work over time, and also make it much easier to share and distribute your code, including sending it to me. At various points, you are required to submit the code you have produced to generate answers to homework or exam questions, and you need to do so in the form of an R script. Multiple questions tend to arise during the course about proper syntax or error messages, and it is much easier for me to help you troubleshoot problems if you send me an R script with all your commands. To help you develop your R script, I have included a template R script that accompanies chapter 1 of the R Companion. Again, just to emphasize, you are required to work in R scripts. I will keep emphasizing this throughout the course.

If you have questions regarding R, I and your classmates can be a resource for each other via the Discussion Board. Please post any and all course-related questions to the Discussion Board so that we can all see each other's questions and we can learn from each other collectively, just as if we were having a discussion in a face-to-face class. Separately, you can also post questions to any of a large number of R discussion groups online (see Additional Resources at end of syllabus). If you do this, please try to inform yourself first about the norms of doing this, including researching the discussion group to see if a similar question has been asked before (very likely), and also presenting the question in a way that

makes it easy for other users to understand your question (e.g., providing a concise description of your problem, your R script, and data). For more information on these norms, see: <http://www.r-project.org/mail.html>

* Note: there are a few typos in the R Companion workbook that have created some confusion in previous versions of this course. I will identify these typos ahead of time, but please be aware that this is possible and try to be careful as you copy material from the workbook into R.

Technical Difficulties

You must plan ahead for completing your work for this online course. We have all experienced technical difficulties with unstable internet connections, computers that freeze up, software that shuts down, scanners and other peripherals that don't work, etc. We must be able to overcome these difficulties, especially in a condensed online course. There will be no exceptions for late work, so you must have a backup plan. For example, make sure you can access an alternate computer or internet connection through a relative, friend, local library, coffee shop, etc. Also, I strongly recommend you download R to another computer that you can access. This way, if your own computer shuts down or R freezes up on it, you know you can quickly move to another machine and keep working. Also, I strongly recommend you have a backup system that synchronizes files on your computer with a storage location, preferably in cloud, and preferably automatic. Google docs is an example of a free backup system, but it is not automatic. Dropbox is an example of a backup system that automatically synchronizes files, but it is only free for a limited amount of memory. There are multiple other options, including cloud computing and git repositories. Plan ahead and be prepared for technical difficulties.

Lastly, I can answer some quick questions about technical issues, but I am not technical support. If you have trouble with the Blackboard course website, you must contact ITS immediately! The longer you wait, the more difficult it is for ITS to identify a problem and the more difficult it is for me to make any reasonable allowance. The ITS Service Desk is available online at: <http://www.albany.edu/its/help-request.html>

If you still need assistance, you can call 518-442-4000, or if you are in the area you can visit the ITS Help Desk on main campus at Lecture Center 27.

Policies

Syllabus. The syllabus and course outline are intended to provide an overview of the course but are subject to change throughout the semester. In particular, scheduling and dates may change. Although the syllabus should be a fairly reliable guide for the course, you are responsible for announcements made via Blackboard, email, or by official channels of the university. You cannot claim any rights based on the first version of this syllabus. For example, if you choose not to login to the course website for several days and miss an important announcement or scheduling change, you cannot claim that the original syllabus should apply to you. An updated syllabus will always be available on the course website. The date at the bottom of the page helps you make sure you are using the most current version.

Email. I expect you to check your official university email. You are responsible for material sent by email. If you have a different email account that you read more frequently, let me know so that I can add your preferred address to the group address for the course. The subject line of class-related messages will always start with "RPOS316", "Summer2016", or a similar designation to alert you to the fact that this is a message related to the course. When directing emails to me, please also place "RPOS316" at the start of the subject line so that I can identify course-related communication. Keep in mind that there are many of you and only one of me and that I also teach other classes, so if you have an important matter to discuss regarding the class, you should communicate clearly and highlight any urgent matter accordingly.

Online office hours: As a general rule, please raise all course-related questions in the Discussion Forum on Blackboard. This will help your classmates see what questions are being asked, whether their own question has already been asked, and what responses have been offered by me or your classmates. As noted elsewhere, this will help generate more of a classroom environment or sense of community.

I will also be available for office hours online twice per week, on Tuesdays and Thursdays, from 8:00-9:30AM EST. Office hours will be held on the Blackboard site, in a chat room. If there are technical difficulties, I will be available on Google Hangouts. You are not required to communicate with me during office hours; this is simply a regular time when you can expect me to be available if you have any questions. If you cannot meet in these office hours, I am available by email and we can schedule a different time to chat online. If there is a particularly pressing issue, we can also set a separate time to meet, but this should be the exception rather than the rule.

Availability. I will be available by email and office hours (see above). I make every effort to answer emails in a timely manner. At a minimum, you can expect a response from me by Tuesday morning if you send an email between Thursday and Monday, and by Thursday morning if you send an email on either Tuesday or Wednesday. However, I try to check my email at least three times throughout the day – early morning, mid-day, and evening -- during the 4 weeks of this course, so you can generally count on receiving a response from me on the same day if you send the email before noon, or the next morning if you send your email late at night. Unless there is a particularly urgent matter, I will answer emails and other contacts in the order I receive them. Please note that there is no teaching assistant or other staff associated with this course. There are many of you and only one of me, so please be patient if you do not hear from me right away. I am likely attending to one of your classmates' concerns.

Late or Missed Work. All work due online is due by the time stated for the assignment, which is usually 5PM (close of business) or 11:59PM (end of the day) on the due date. No late exams will be given without a *legitimate* explanation (e.g., serious medical or family emergency) and *documentation* of this emergency. Late homework will be penalized 5% for each day it is late, and it is considered late if turned in beyond the time limits above. For example, if an assignment is due at 5PM on Friday and you turn it at 5:10PM, the highest grade you can receive is 95%.

Participation. Learning research methods is a cumulative process and if you miss one step it is difficult to catch up. It is particularly difficult to catch up in a condensed, 4-week session. We all commit to this time at the start of the term, and we all have competing time commitments and responsibilities. If you are participating and completing work on a regular basis and then require further clarification outside of class, I am happy to help. However, if you are not participating and not completing work on a regular basis, it is not appropriate to expect the material that has already been covered to be re-taught to you.

Reading. It is also *very important* that you stay current with reading and read the chapters *before* the date they are assigned on the schedule below. Many students have moderate success in many of their classes skimming the readings the night before tests are scheduled. This will not work in this course. Many of the concepts are difficult and it is very helpful to learn the material incrementally and in several different ways. The short video lectures are intended to build upon the readings, so it is important to read the chapters first. Almost all of the chapters should be read while sitting in front of a computer running R. This is the most helpful and productive way to work through the material. Given the condensed 4-week format, you may want to consider getting a head start on the reading, and using the weekends to stay ahead in the readings.

Extra Credit. There are two different ways you can earn extra credit in this course (1) scheduled opportunities near end of course, and (2) unscheduled opportunities that you design yourself. First, there are two scheduled extra credit assignments towards the end of the course. Extra credit is not guaranteed just because you complete either of these assignments; that is, you need to complete them correctly. Also, if you miss either of these extra credit assignments you cannot make it up at a later date. Caution: both extra credit assignments are rather long and require you to apply multiple skills learned over the course of the entire class, so if you want to complete one of these make sure you set aside time to do so. These are not quick or simple assignments, so don't expect to be able to pick up easy points at the end of the course.

Second, in addition to these scheduled opportunities for extra credit, I also offer one opportunity for extra credit to each student for giving a **tutorial**. That is, if you identify a subject that is not covered in class – or not fully covered and about which it would be helpful to provide information beyond that which is covered in class – and you then give a **tutorial** to the rest of the class that provides instruction on this subject, you will earn extra credit. Potential subjects for a tutorial are very open and could relate to the math behind some of the statistical concepts, a real-world application of a statistical concept or technique, a new method of coding something in R, or a new way of generating a report, presentation, or video representation of results generated in R. All tutorials must be delivered in a way that is accessible to students online as either a short written report or a short video or slide presentation. The video demonstrations that I provide for some sections of the class offer examples of what a tutorial might look like. Ideally, you would provide a short report accompanied by a video so that we can watch the video and follow along in the written report, just as you can follow along in the textbooks and/or in R with the videos I provide. If you would like to do a tutorial for extra credit, please contact me first so that we can make sure the subject is appropriate. All tutorials must be delivered no later than the end of the second-to-last week of class, by Wednesday, August 3, 2016.

Academic Integrity. All students must familiarize themselves with the *Standards of Academic Integrity* on the University's website and pledge to observe its tenets in all written and oral work, including oral presentations, quizzes and exams, and drafts and final versions of essays. The full standards and examples of dishonest behavior are available at:
http://www.albany.edu/undergraduate_bulletin/regulations.html.

Americans with Disabilities Act (ADA). Qualified students with disabilities needing appropriate academic adjustments should contact me as soon as possible to ensure your needs are met in a timely manner.

Miscellaneous. If you feel you need any help or simply want clarification on any of the material, please do not hesitate to raise your question in class or approach me outside of class. I will hold regular office hours throughout the summer session. If you cannot arrange to come talk with me during these hours, please call or email me, or contact the Department of Political Science administrative offices, so that we can set up an appointment.

Additional Resources. Please note that there are several short readings beyond the two main textbooks. Some of these readings are required, while others are optional or recommended. However, these optional or recommended readings can be very helpful in navigating the programming language we are using (R) and for understanding statistics in general. Additionally, please feel free to explore other resources, some of which I've listed below.

- Local R users' group
 - There is one in Albany!
 - <http://www.meetup.com/Albany-R-Users-Group/>
- UCLA R site (Institute for Digital Research and Education, IDRE)
 - <http://www.ats.ucla.edu/stat/r/>
- R-bloggers
 - <http://www.r-bloggers.com/>
- Inside-R
 - <http://www.inside-r.org/blogs>
- R-statistics blog
 - <http://www.r-statistics.com/>
- Quick-R
 - <http://www.statmethods.net/>
- R discussion groups or mailing lists:
 - <http://stackoverflow.com/questions/tagged/r>
 - <http://www.r-project.org/mail.html>
 - <http://r.789695.n4.nabble.com/>
- Free online instructional sites
 - DataCamp
 - <https://www.datacamp.com/>
 - CodeSchool
 - <http://tryr.codeschool.com>
- Replication data sets:
 - Dataverse

- <http://dataverse.org/>
- ICPSR
 - <http://www.icpsr.umich.edu/icpsrweb/deposit/prd/index.jsp>
- American Journal of Political Science Dataverse
 - <https://dataverse.harvard.edu/dataverse/ajps>
- Journal of Peace Research data
 - <https://www.prio.org/JPR/Datasets/>

Class Schedule - Overview

Date	Topic	Reading	Homework
	WEEK 1		
7/05	Introduction and overview	Syllabus	Review syllabus, Bb site
7/06	Scientific Method	EPA Introduction; Kellstedt and Whitten Ch1	Discussion1
7/07	Concept Formation	EPA Ch1; Sartori	EPA Ch1; Discussion2
7/08	Measurement	EPA Ch2; Stevens	EPA Ch2; Discussion3
	WEEK 2		
7/11	Explanatory Propositions and Hypotheses	EPA Ch3, Ch4A (78-86)	EPA Ch3; Discussion4
7/12	Exam 1 open		
7/13	Exam 1 open		
7/14	Introduction to R and Descriptive Statistics	R Companion Ch1 and Ch2; EPA 119-124 (review EPA Ch2, pp. 30-39, and Ch3, pp. 54-65)	
7/15	(cont.)		
	WEEK 3		
7/18	Making Comparisons	EPA Ch4B (86-97); R Companion Ch4	Discussion5 R Companion Ch1 & Ch2
7/19	(cont.)		
7/20	Controlled Comparisons	EPA Ch5	Discussion6 R Companion Ch4
7/21	(cont.)	R Companion Ch5	
7/22	(cont.)		R Companion Ch5
	WEEK 4		
7/25	Exam 2 (open over weekend)		
7/26	(review/open)		
7/27	Inferential Statistics	EPA Ch6; R Companion Ch6	Discussion7
7/28	(cont.)		R Companion Ch6
7/29	Tests of Significance	EPA Ch7; R Companion Ch7	Discussion8
	WEEK 5		
8/01	(cont.)		R Companion Ch7
8/02	Correlation and Linear Regression	EPA Ch8A (through p196); R Companion Ch8	Discussion9
8/03	(cont.)		
8/04	(cont.)		

8/05	(cont.)		R Companion Ch8
	WEEK 6		
8/08	Extensions of linear regression: Dummy Variables, Interactions	EPA Ch.8B (p196-end); R Companion Ch9	
8/09	(cont.)		
8/10	(cont.)		R Companion Ch9
8/11	Extra Credit #1 and #2	BOTH EXTRA CREDITS ARE OPTIONAL (*)	
8/12	Exam 3 (Final)		Final Exam Extra Credit (R Companion Ch10* and Replication Exercise*)